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REMARKS

This preliminary amendment is to be considered in response to the final office action mailed on February 9, 2007 which rejected claims 1-6 and 8.

Claims 1-6 and 8 had been rejected on obviousness grounds and description requirements, and in response, claim 1 has been amended to more particularly point out and distinctly claim the invention for which protection is being sought, namely by adding the limitations of "open air-interfaces with CAI-BIOS". The added recitations are supported by the specification throughout, for example by the description of CAI-BIOS shown in paragraphs 24, 25 and FIG 3, 4. In addition, more detailed distinction to the cited art has been respectfully contended.

Claims 2-6 and 8 have also been amended to more particularly point out and distinctly claim the invention for which protection is being sought, by adding the limitation of "CAI-BIOS".

Claim 7 had been cancelled.

The above changes place the application in condition for allowance. In addition, request is respectfully made for entry of new claims 9-15 that are also believed to be allowed. Therefore, a Notice of Allowance is respectfully solicited.

Claims 1-6, 8 and new claims 9-15 are currently pending in the present invention.

IN RESPONSE TO THE OFFICE ACTION:

Applicant respectfully traverses the § 112 rejections with the following arguments:

35 USC § 112

As to claims 1-6 and 8 the Examiner states that “The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application as filed, had possession of the claimed invention. Applicant claims a wireless terminal and an access point that are capable of supporting a large number of wireless standards, but fails to explain the technical details of enabling these apparatuses to support this plethora of interfaces. More specifically, applicant does not address, in detail, the software and hardware issues associated with supporting these wireless standards, but rather merely mentions and draws apparatuses that are allegedly capable of this feat. Thus, the specification fails to disclose any specific details for enabling one skilled in the art to make the invention.”

Applicant contends that claims 1-6 and 8, as amended, disclose complete specification as a system architecture invention, to enable one skilled in the art to implement the invention because system architecture is focusing on the definition of system functional blocks and definition of product components. Applicant respectfully points out that in FIG.2-4 and the detailed description, Applicant discloses in details the system hardware modules and software modules and their product definitions.

Applicant further contends that the system architecture mainly relies on one or two principal architectural frameworks, rather than detailed design issues, to enable the implementation of the invention. Applicant discloses such principal architectural frameworks including CAI-BIOS architecture and its corresponding Common Access Point and Converged Wireless Terminal of the invention. Applicant respectfully points

out that the disclosed specification provides enough details for enabling one skilled wireless system architect to make the invention and implement the product.

As to claims 1-2 and 8 the Examiner further states that “The claims are narrative in form and replete with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claims must be in one sentence form only.”

Applicant has amended and reformatted the claims in compliance with 35 U.S.C. 112, second paragraph.

Based on the preceding arguments and amendment, Applicant respectfully maintains that claims 1-6 and 8 are in condition for allowance.

Applicant respectfully traverses the § 103 (a) rejections with the following arguments:

35 USC § 103

As to claim 1, the Examiner first states that “Jorgensen discloses a system architecture for wireless IP packet communication; several wireless air interface protocols, such as TDMA, FDMA, and CDMA, may be used. The system architecture involves the convergence of separate voice, video, and data networks into a single broadband network. Jorgensen discloses a cellular telephone as part of this converged network. It is inherent that the cellular telephone in this wireless IP network contains a transceiver for upconverting the base band analog signal equivalent of the user’s voice to the radio transmission frequency, converting downlink digital packet data to analog signals, and downconverting this analog signal to a base band signal that is sent to a speak adjacent to the user’s ear. IT is inherent that the cellular telephone contains a processor, or set of processors, for executing whatever wireless algorithms and protocols (TDMA, FDMA, CDMA as mentioned above) are being used by the cellular telephone at any given time, and a basic input/out system for controlling the processor(s) as well as the transceiver in its use of the various wireless air interfaces protocols, and a memory for storing the various air interfaces protocol software modules and loading them to the basic input/output system as needed.”

Applicant contends that claim 1, as amended, is not obvious in view of Jorgensen because Jorgensen does not teach each and every feature of claim 1. In a first example, Jorgensen does not teach or suggest “A CAI-BIOS for the mapping and controlling of different open wireless air-interfaces to said broadband transceiver and said processing engine.”

Applicant points out that in Jorgensen FIG.2A-2C and the entire description, there is never a teaching or suggestion of such CAI-BIOS architecture to support the open air interfaces including mobile communications. Applicant respectfully points out that in FIG.3, FIG.4 and paragraph 24, 25 of Applicant’s description which states:

“Second, the invention is directed to a *CAI-BIOS (Common Air Interface-Basic Input/Output System)* which is the most important technical breakthrough in the design of this converged broadband wireless terminal and the CAP. With this CAI-BIOS, the different air interfaces (or different wireless standards) can be mapped to an open baseband and control processing engine as well as the RF units, etc. In the case of the CAP design, these different air interfaces modules can be uploaded from the backbone networks, remote networks or stay in the CAP disks, etc. In the case of the wireless terminal, these air interfaces modules can be loaded from the SIM card, memory stick or others.

In addition, *this CAI-BIOS is very important for the future convergence of wireless communications and computers as the two BIOSs (CAI-BIOS and the PC-BIOS) may integrate into one* when the beautiful wireless life is approaching.”

Applicant further contends that Jorgensen limits to P-MP (point to multi-point) fixed broadband wireless access system only, without teaching or suggesting a disclosure for various mobile wireless communications. Applicant respectfully points out that in Jorgensen FIG.2A-2C and its description which states:

“Network 200 further includes a *fixed wireless CLEC 209*. Example *fixed wireless CLECs are Teligent Inc., of Vienna, Va., WinStar Communications Inc., Advanced Radio Telecom Corp. And the BizTel unit of Teleport Communications Group Inc. Fixed wireless CLEC 209* includes a wireless transceiver/receiver radio frequency (RF) tower 210 in communication over an RF link to a subscriber transceiver RF tower 212. Subscriber RF tower 212 is depicted coupled to a CPE box, PBX 112b. PBX 112b couples calling parties 124b and 126b, fax 116b, client computer 118b and associated modem 130b, and local area network 128b having client computer 120b and server computer 122b coupled via an associated modem 130b.” Applicant respectfully points out that Jorgensen’s disclosure is a IEEE 802.16 standard-specific solutions only because CPE is only used in IEEE 802.16 standards, and the aforementioned companies are all IEEE 802.16 vendors only.

Applicant further contends that claim 1, as amended, is not obvious in view of Jorgensen because Jorgensen does not teach each and every feature of claim 1. In a second example, Jorgensen does not teach or suggest “a SIM card or memory card for the loading of open air interfaces.” Applicant respectfully points out that in Jorgensen there is never a teaching or suggestion to load or store any wireless air interface in a SIM card or a memory card. Applicant respectfully points out that in FIG.4 and paragraph 15, 24 and 39 of Applicant’s description which states:

“The same terminal (called "Converged Wireless Terminal") can support different air-interfaces *by using related SIM card or Memory Stick containing necessary air-interface modules,*”, and

“In the case of the wireless terminal, *these air interfaces modules can be loaded from the SIM card, memory stick or others,*” and

“However, *because the wireless spectrum is very expensive and the terminal capacity (processing, memory, power, etc) is very limited, we need to use the SIM card or Memory Stick, etc to load the different common air interfaces modules.*”

Applicant contends that the use of SIM card or memory card containing various open air interfaces (wireless standards) to maximize the spectrum utilization efficiency and system resource is one of the most important disclosures of the present invention, which has never been disclosed in prior art.

As to claim 1, the Examiner further states that “Jorgensen discloses wireline infrastructure comprising an end office switch and a cellular tower for communicating with the aforementioned cellular telephone. It is inherent that this infrastructure contains a transceiver for converting from digital base band data to a radio frequency analog signal and vice versa, as well as a processor, or set of processors, for executing whatever wireless algorithms and protocols (TDMA, FDMA, CDMA as mentioned above) are

being used by the cellular tower at any given time, and a basic input/output system for controlling the processor(s) as well as the transceiver in its use of the various wireless air interface protocols, and a group of software modules associated with the various air interface protocol software modules for use by the basic input/output system. An access tandem connects the end office switch to backbone wireline networks. Jorgensen discloses that the aforementioned converged network may be connected to the Internet, an IP packet network.”

Applicant contends that claim 1, as amended, is not obvious in view of Jorgensen because Jorgensen does not teach each and every feature of claim 1. In a third example, Jorgensen does not teach or suggest “CAI-BIOS for the mapping and controlling of different open wireless air interfaces for the Common Access Point.” Applicant respectfully points out that in Jorgensen Column 24, Lines 42-48 and FIG.2A, the cellular communications RF tower is a fixed broadband wireless access system tower with wireless cell topology which is nothing to do with cellular mobile communications. In more specific way, Jorgensen limits to IEEE 802.16 specific wireless standard with CPE and the specific IEEE802.16 base station.

Applicant respectfully points out that the Examiner confuses the “cellular communications RF tower” with the “cellular telephone”. Most wireless tower, including mobile wireless communications and fixed wireless transmission is a cellular tower if the frequency reuse is required. The cellular telephone is popularly referred to mobile wireless communication terminal phone with features of seamless mobility and call handover. Applicant points out that Jorgensen limits to fixed wireless access systems only (further limited to IEEE802.16 standard) without teaching or suggesting features of mobile wireless communications or other air interfaces.

Applicant further respectfully points out that the Examiner confuses the “CAI-BIOS” of the present invention with “computer BIOS”. The computer BIOS is an input/output subsystem defined for different hardware modules, for example, keyboard, monitor, hard driver, printer, etc. However, CAI-BIOS is to map the various open air interfaces (various

wireless radio transmission technologies, for example, GSM, CDMA, WLAN, OFDM, WiMax, etc) into the open interface parameters for the corresponding wireless system modules. CAI-BIOS is a wireless AIR-INTERFACE system defined by open wireless architecture. Applicant points out that in Jorgensen, there is never such teaching or suggestion on CAI-BIOS of open air interfaces.

Applicant further respectfully points out that the Examiner confuses the “CAI-BIOS open air interfaces memory card” with “standard memory card”. The CAI-BIOS open air interface memory card or SIM card is used to optimize the wireless spectrum utilization and system resource management of the converged wireless terminal, and further support the future open spectrum management of wireless communications. This memory card or SIM card is specially defined by CAI-BIOS architecture.

As to claim 1, the Examiner further states that “Willhoff discloses the use of a smart antenna array with a base station in the context of multiple air interface protocols for digital cellular systems.”

Applicant contends that claim 1, as amended, is not obvious in view of Willhoff because Willhoff does not teach each and every feature of claim 1. In a fourth example, Willhoff does not teach or suggest “converged platform to support various open wireless standards or air interfaces.” Applicant points out that Willhoff’s disclosure is on transmission grouping scheme in TDMA system only without teaching or suggesting other air interfaces.

Applicant contends that this open air interfaces based CAI-BIOS architecture has never been disclosed in the prior art. Thus, it is impossible and not obvious for a person of ordinary skill in the art to modify the invention of Jorgensen with Willhoff to come out the Applicant disclosure.

In asserting this rejection, two separate prior art references had to be combined. However, that combination failed to include the claim element of several system components based

on “open air-interface CAI-BIOS architecture.” Prima facie obviousness is lacking because claim 1 recites this missing element.

Based on the preceding arguments, Applicant respectfully maintains that claim 1 is not unpatentable over Jorgensen in view of Willhoff and is in condition for allowance. Since claims 2-6 depend from claim 1, Applicant respectfully maintains that claims 2-6 are likewise in condition for allowance.

As to claim 4, the Examiner states that “claim 4 recites an architecture wherein integrated services of voice, data, and video are transmitted between the converged wireless terminal and the common access point via all-IP end-to-end direct signaling and protocol. Jorgensen discloses point-to-multipoint wireless packet transmission of IP voice, video, and data.”

Applicant contends that claim 4, as amended, is not obvious in view of Jorgensen because Jorgensen does not teach each and every feature of claim 4. For example, Jorgensen does not teach or suggest “all-IP protocol and signaling through open air interfaces.” Applicant points out that in Jorgensen (Column 6 lines 4-9, column 33 lines 6-15), such IP transmission is only limited to one fixed wireless access system standard, or called IEEE 802.16 standard easily recognized by a person of ordinary skill in the art.

Applicant further points out that Jorgensen is limited to CPE (customer premise equipment) terminal only which is a specific IEEE802.16 equipment supporting point-to-multipoint IP connection rather than all-IP end-to-end direct connection.

As to claim 5, the Examiner states that “Jorgensen discloses the practice of dynamic bandwidth allocation. Examiner takes official notice that there exist basic input/output systems for providing the transceivers of working wireless communication devices with parameters for transmission, modulation, channels to be used, and access control. It would have been obvious to explicitly specify such a basic input/output system for the

wireless communication devices because it is the domain of the basic input/output systems to control bidirectional communication between an electronic communication device and one or more users, and the aforementioned parameters are basic facets that must be addressed for wireless communication to occur.”

Applicant contends that claim 5, as amended, is not obvious in view of Jorgensen because Jorgensen does not teach each and every feature of claim 5. For example, Jorgensen does not teach or suggest “CAI-BIOS generates open interface parameters (OIP) of open air interfaces.” Applicant points out that in Jorgensen disclosure, there is never a teaching or suggestion to generate open interface parameters based on CAI-BIOS.

Applicant is confused by this rejection since the CAI-BIOS is nothing to do with “controlling bidirectional communication between an electronic communication device and one or more users” as stated by the Examiner. Instead, CAI-BIOS is to map the various open air interfaces into the open interface parameters. Applicant contends that the CAI-BIOS as disclosed by Applicant and stated in FIG.3 and FIG.4 as “A CAI-BIOS for the mapping and controlling of different open wireless air-interfaces to said broadband transceiver and said processing engine” has not been shown by the Examiner to be obvious to one ordinary skill in the art.

As to claim 6, the Examiner states that “Examiner takes official notice that both the wireless terminal and the common access point may store software, pertaining to wireless standards, locally. This modification is obvious because local storage of necessary software is extremely common in solid-state electronic information processing devices and allows users the convenience of not having to insert objects containing the necessary software every time the devices are to be used. Examiner takes official notice that the common access point may download software as necessary from a remote network. This modification is obvious because the transfer of software between remotely connected IP devices is extremely common and gives users the capability of upgrading and enhancing the performance of said devices.”

Applicant contends that claim 6, as amended, is not obvious in view of Jorgensen and prior art because both do not teach each and every feature of claim 6. For example, both Jorgensen and prior art do not teach or suggest "open software modules providing open air interfaces to CAI-BIOS can be loaded in SIM card." Applicant respectfully points out that while it is very popular to store data and application software in a memory card, there is never a teaching or suggestion in the prior art to load the open air interfaces (wireless standards) into a SIM card defined by the CAI-BIOS architecture as disclosed in Applicant invention. Applicant further contends that the CAI-BIOS based SIM card is totally different from the conventional data memory card because the CAI-BIOS based SIM card contains the implementation of the various air interfaces in the form of open interfaces parameters of the open air interfaces based on the CAI-BIOS architecture. Applicant further points out that the CAI-BIOS architecture can provide the users of the capability to change different wireless standards (actually open to any wireless standard) by just changing the CAI-BIOS based SIM card rather than changing their wireless phones, which has never been disclosed in prior art. Thus, this special "CAI-BIOS based open software module" has not been shown by the Examiner to be obvious to one ordinary skill in the art.

Based on the preceding arguments of claims 4-6, in asserting the rejection, two separate prior art references had to be combined. However, that combination failed to include the claim element of each claim. Because claims 4-6 comprising open system modules of open air interfaces and CAI-BIOS, which are missing from the cited references, prima facie obviousness is lacking. Reconsideration and allowance of the claims 4-6 is respectfully requested.

As to claim 3, the Examiner states that "Hagen discloses that a mobile terminal of the disclosed broadband wireless network may automatically or manually self-configure its configuration parameters. Examiner takes official notice that it was well known in the art at the time of the invention for a common access point to be reconfigurable, programmable, and software definable. This modification is obvious because there are

numerous examples of both types of devices that have the same set of functions as a desktop personal computer (the ability to read from and write to memory, the ability to install new software, etc.), and such flexibility allows both the mobile wireless terminal and the fixed wireless infrastructure to be updated when new standards come into existence.”

Applicant contends that claim 3, as amended, is not obvious over Jorgensen in view of Willhoff and Hagen because they do not teach each and every feature of claim 3. For example, they do not teach or suggest “converged wireless terminal operative in open air interfaces based on CAI-BIOS architecture.” Applicant respectfully points out that the prior art references limit to specific wireless interfaces only, for example, Jorgensen limits to IEEE802.16 fixed wireless access system only, Willhoff limits to TDMA system only and Hagen limits to IEEE802.15/11 local wireless access system only. Applicant further contends that in FIG.2, FIG.3 and detailed description, Applicant disclosure provides capability of supporting any common air interfaces (wireless standards) through the CAI-BIOS architecture in the form of open software modules of open air interfaces either uploaded from network or loaded in the SIM card. Applicant respectfully requests the Examiner explicitly state what he interprets as “this modification is obvious because there are numerous examples of both types of devices that have the same set of functions as a desktop personal computer (PC)” because PC is totally different from the wireless equipment, if the Examiner rejects Applicant argument.

Applicant is confused by this rejection because the Examiner states the rejection is based on Jorgensen in view of Willhoff and Hagen, but gives his reason for combining references without citation from Jorgensen and Willhoff as “one of ordinary skill in the art would have been motivated to make this modification because it gives the user the flexibility of choosing a given protocol or of allowing the best available protocol to be chosen.”

Applicant believes this 103(a) rejection is because the reason to combine references must exist in the prior art and not in the Applicant disclosure per *In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (fed. Cir. 1991).

The Examiner has cited “providing the means for the wireless terminal and the access point to automatically or manually select *any of the available air interface protocols*” as an obvious modification of Jorgensen in view of Willhoff and Hagen. Applicant contends that the open air interfaces solution based on CAI-BIOS architecture as disclosed by Applicant and defined in claim 3 as “operative in open air interfaces based on CAI-BIOS architecture subject to service availability” has not been shown by the Examiner to be obvious to one ordinary skill in the art.

Based on the preceding arguments, Applicant respectfully maintains that claim 3 is not unpatenable over Jorgensen in view of Willhoff and Hagen and is in condition for allowance.

As to claim 8, the Examiner states that “Jorgensen discloses the practice of dynamic bandwidth allocation. Hagen discloses that a mobile terminal of the disclosed broadband wireless network may automatically or manually self-configure its configuration parameters. Kerr discloses a biometric broadband gaming system and method. Voice patterns and fingerprints are used as forms of user verification.”

Applicant contends that claim 8, as amended, is not obvious over Jorgensen in view of Willhoff, Hagen and Kerr because they do not teach each and every feature of claim 8. For example, they do not teach or suggest “open air interfaces options based on CAI-BIOS” and “SIM card or memory card containing open air interfaces of CAI-BIOS architecture.” Applicant respectfully points out that in Jorgensen, Willhoff, Hagen or Kerr, there is never a teaching or suggestion of enabling a wireless phone to be operative in open air interfaces supporting various wireless standards. Instead, Jorgensen limits to

IEEE802.16 only, Willhoff limits to TDMA only, Hagen limits to IEEE802.15/11, and Kerr is limited to wired system.

In asserting this rejection, four separate prior art references had to be combined. However, that combination failed to include the claim element of several system components based on CAI-BIOS architecture. Prima facie obviousness is lacking because claim 8 recites this missing element.

Based on the preceding arguments, Applicant respectfully maintains that claims 8 is not unpatentable over Jorgensen in view of Willhoff, Hagen and Kerr and are in condition for allowance.

As to claim 2, the Examiner did not state the details of rejection. Applicant will proceed assuming the Examiner to allow claim 2 on this basis. In case the Examiner rejects Applicant argument, Applicant will contend that claim 2, as amended, is not obvious in view of prior art references because prior art does not teach or suggest every feature of claim 2, for example, “converged wireless terminal supporting open air interfaces to said common access point based on CAI-BIOS architecture”.

The lack of “open air interfaces with CAI-BIOS architecture” in the cited art is significant for several reasons. Prima facie obviousness is lacking because claims 1-6 and 8 recite this missing element. To make this distinction more clear, the term “CAI-BIOS” has been added to these claims.

Based on the preceding arguments, Applicant respectfully maintains that claims 1-6 and 8 are not unpatentable over Jorgensen in view of Willhoff, Hagen and Kerr and are in condition for allowance.

To further contend the distinction to the cited prior art references, request is respectfully made for entry of new claims 9-15 that are also believed to be allowed.


CONCLUSION


Based on the preceding arguments, Applicant respectfully believes that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicant invites the Examiner to contact the Applicant directly at the telephone number listed below.

Applicant has made earnest attempt to respond to all the points included in the last office action by preliminary amendment and argument. Consideration of the amended claims and notification of allowance of all pending claims are earnestly solicited.

Respectfully submitted,

BY:


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